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United States Department Of Agriculture | Forest Service | Shasta-Trinity National Forests

Reply To: 3420 Date: December 6, 1989

Subject: Evaluation of Dying Douglas-fir in Caroway Timber Sale, Big Bar Ranger District (Rept. No. N89-26)

To: Forest Supervisor, Shasta-Trinity NFs

On September 25, 1989, Dave Schultz, entomologist, and I visited a unit in the proposed Caroway timber sale, Big Bar RD, with Larry McLean and Lisa Wrenn from the District. This 4 acre unit is near Jim Jam Ridge (T. 7 N., R. 7 E., section 25).

The site is occupied primarily by a single story Douglas-fir stand with some white oak, black oak, and Pacific madrone. A small area adjacent to the unit was clearcut in 1980. The area we examined is proposed to be cleared and planted with Douglas-fir. About 3 years ago, Douglas-fir along the boundary of the clearcut unit began dying. The District was concerned that a root disease or other biotic agent might be present that could interfere with their proposed sale and regeneration of the site.

We did not find any root disease associated with the tree mortality. The flatheaded fir borer, Melanophila drummondi, was present in recently dead and dying Douglas-firs. Attacks of this insect on surrounding green trees were evident from the presence of small resin streamers on the boles. This insect will lay eggs on trees in all states of vigor, but the larvae will only develop in, and kill, trees that are weak and of low vigor. This includes diseased, fire-damaged, and recently felled trees, and those undergoing drought conditions. Douglas-firs in healthy condition normally survive attacks by the flatheaded fir borer.

A biotic agent was not found that could explain the susceptibility of these Douglas-firs to the flatheaded fir borer. It is believed that these trees became weakened by two factors: sudden exposure and injury from the clearcut in 1980 and the past 3 years drought conditions. The drought probably was the more significant of the two, although root damage likely occurred during harvesting which reduced the ability of these trees to take up water.

Most of the Douglas-firs around the edge of the clearcut have probably had fir flatheaded borer eggs laid on them. Trees with external signs of infestation such as discolored foliage, top and branch dieback, or obvious resin streamers will probably die. Most green trees which have no external signs of infestation will survive if soil moisture conditions improve. Because the fir flatheaded borer life cycle commonly extends over several years, mortality caused by this insect does not change rapidly. If precipitation returns to normal this winter,

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mortality will still be high in 1990 and then taper off over a period of several years. If soil moisture conditions do not improve, mortality will remain high or increase in the near future.

The proposed action to clear the unit and regenerate with Douglas-fir will have little effect on insect activity and tree mortality. Some infested trees that might slowly die will be harvested while still green. Regeneration of the site with Douglas-fir will not be affected by the present conditions.

If you have any questions about this report, please contact Dave Schultz or me at (916) 246-5101.

/s/ Gregg DeNitto

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